

Installing Apache 1.3.12

ITOS Edition

\$Id: install-apache.texi,v 3.7 2006/03/21 16:07:23 bgoldman Exp \$

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Installing and Configuring the Apache 1.3.12 WWW Server

This describes how we install and configure the Apache 1.3.12 WWW Server on ITOS computers. These instructions apply to development and well as operational systems running either Solaris or FreeBSD.

Obtaining apache

We looked at <http://www.apache.org/> and found links to a mirror site that had 'apache_1.3.12.tar.gz'. This is the file you'll need!

About our installation

The default installation places the apache files in '/usr/local/apache'. This doesn't work well on most of our installations since '/usr/local' is shared among several machines in a cluster. We prefer to place the configuration files in '/etc' so that each machine can be configured differently; we prefer to place log files in '/var' to keep each machine's log files separate. Finally, we prefer to keep the document root (what you get with 'http://localhost/' in '/usr' so that each machine can have a different document root.

We keep most of our pages in users' home directories, in the 'public_html' subdirectory. We have a special user www where we keep generic pages (in '~www/public_html') that can be shared among machines in a cluster. For example, GNU info documents that have been converted to html could go under '~www/public_html'.

Some of our machines will act as gateways between a local network and the internet; we normally configure these machines as proxy servers. Since we re-arrange lab machines fairly often, we add the proxy module to all machines but only enable proxy on gateway machines.

We occasionally use server-side includes ('.shtml' files), so we'll turn that option on; similarly, we have CGI scripts (with the '.cgi' suffix) in some of our document directories, so we'll turn that option on.

'index.html', the default page when only the directory name is specified, gets lost in an alphabetical (i.e. 'ls') listing of the directory. We'll add 'Welcome.shtml', 'Welcome.cgi' and 'Top.html' to the list of default page names. Sometimes we copy files from dos machines, so we also honor the '.htm' extension.

Finally, we're a bit paranoid, so we usually restrict access more than the default.

Building apache

Let \$WORKDIR be the working directory where you're going to build apache; let \$DISTFILEDIR be the directory containing 'apache_1.3.12.tar.gz'. Then:

```
# cd $WORKDIR
# gtar zxf $DISTFILEDIR/apache_1.3.12.tar.gz
# cd apache_1.3.12
# ./configure --sysconfdir=/etc/apache \
```

```

--logfiledir=/var/apache \
--enable-module=proxy
# make
# make install

It's that simple. Here's what got created:

Directory '/usr/local/apache':
# cd /usr/local/apache
# ls -lR
.:
total 20
drwxr-xr-x  2 root    other        512 Jul 10 18:14 bin
drwxr-xr-x  2 root    other        512 Jul 10 18:14 cgi-bin
drwxr-xr-x  3 root    other        512 Jul 10 18:14 htdocs
drwxr-xr-x  3 root    other      2048 Jul 10 18:14 icons
drwxr-xr-x  3 root    other      1024 Jul 10 18:14 include
drwxr-xr-x  2 root    other        512 Jul 10 18:13 libexec
drwxr-xr-x  2 root    other        512 Jul 10 18:13 logs
drwxr-xr-x  4 root    other        512 Jul 10 18:13 man
drwxr-xr-x  2 nobody  nobody      512 Jul 10 18:13 proxy

./bin:
total 1364
-rw xr-xr-x  1 root    other     26760 Jul 10 18:13 ab
-rw xr-xr-x  1 root    other     7065 Jul 10 18:13 apachectl
-rw xr-xr-x  1 root    other    20428 Jul 10 18:14 apxs
-rw xr-xr-x  1 root    other     6446 Jul 10 18:14 dbmmanage
-rw xr-xr-x  1 root    other    15684 Jul 10 18:14 htdigest
-rw xr-xr-x  1 root    other    37848 Jul 10 18:14 htpasswd
-rw xr-xr-x  1 root    other   553744 Jul 10 18:13 httpd
-rw xr-xr-x  1 root    other     8940 Jul 10 18:14 logresolve
-rw xr-xr-x  1 root    other     6284 Jul 10 18:14 rotatelogs

./cgi-bin:
total 4
-rw r--r--  1 root    other     264 Jul 10 18:14 printenv
-rw r--r--  1 root    other     757 Jul 10 18:14 test-cgi

./htdocs:
total 74
-rw r--r--  1 1078    1078     2326 Jul  3 1996 apache_pb.gif
-rw r--r--  1 1078    1078    1877 Sep  2 1999 index.html.ca
-rw r--r--  1 1078    1078    1623 Dec  9 1999 index.html.cz
-rw r--r--  1 1078    1078    2263 Aug 18 1999 index.html.de
-rw r--r--  1 1078    1078    1550 Aug 19 1999 index.html.dk
-rw r--r--  1 1078    1078    1870 Aug 20 1999 index.html.ee
-rw r--r--  1 1078    1078   1358 Nov 20 1999 index.html.en
-rw r--r--  1 1078    1078   1772 Aug 27 1999 index.html.es

```

```
-rw-r--r--  1 1078    1078      1794 Aug 18 1999 index.html.fr
-rw-r--r--  1 1078    1078      1826 Jan 30 14:59 index.html.it
-rw-r--r--  1 1078    1078      1623 Jan 30 11:18 index.html.ja.jis
-rw-r--r--  1 1078    1078      1887 Aug 20 1999 index.html.lu
-rw-r--r--  1 1078    1078      2010 Aug 18 1999 index.html.nl
-rw-r--r--  1 1078    1078      1951 Jan 30 11:18 index.html.po.iso-pl
-rw-r--r--  1 1078    1078      1825 Jan 31 18:23 index.html.pt
-rwxr-xr-x  1 1078    1078      1920 Jan 30 14:59 index.html.pt-br
-rw-r--r--  1 1078    1078      1683 Aug 18 1999 index.html.se
drwxr-xr-x  7 1078    1078      1024 Feb 23 18:11 manual

./htdocs/manual:
total 658
-rw-r--r--  1 1078    1078      4815 Feb 23 18:11 bind.html
-rw-r--r--  1 1078    1078      3942 Feb 23 18:11 cgi_path.html
-rw-r--r--  1 1078    1078      22689 Feb 23 18:11 content-negotiation.html
...
./icons:
total 190
-rw-r--r--  1 1078    1078      246 Feb 22 1996 a.gif
-rw-r--r--  1 1078    1078      242 Feb 22 1996 alert.black.gif
-rw-r--r--  1 1078    1078      247 Feb 22 1996 alert.red.gif
...
./include:
total 566
-rw-r--r--  1 root     other      16369 Jul 10 18:14 alloc.h
-rw-r--r--  1 root     other      8421 Jul 10 18:14 ap.h
-rw-r--r--  1 root     other      22988 Jul 10 18:14 ap_compat.h
...
./libexec:
total 0

./logs:
total 0

./man:
total 4
drwxr-xr-x  2 root     other      512 Jul 10 18:14 man1
drwxr-xr-x  2 root     other      512 Jul 10 18:14 man8

./man/man1:
total 42
-rw-r--r--  1 root     other      6443 Jul 10 18:14 dbmmanage.1
-rw-r--r--  1 root     other      4125 Jul 10 18:14 htdigest.1
-rw-r--r--  1 root     other      8262 Jul 10 18:14 htpasswd.1
```

```
./man/man8:  
total 80  
-rw-r--r-- 1 root other 6959 Jul 10 18:13 ab.8  
-rw-r--r-- 1 root other 5307 Jul 10 18:13 apachectl.8  
-rw-r--r-- 1 root other 12155 Jul 10 18:14 apxs.8  
-rw-r--r-- 1 root other 6546 Jul 10 18:13 httpd.8  
-rw-r--r-- 1 root other 3602 Jul 10 18:14 logresolve.8  
-rw-r--r-- 1 root other 3626 Jul 10 18:14 rotatelogs.8  
  
.proxy:  
total 0  
#  
Directory '/etc/apache':  
# cd /etc/apache  
# ls -lR  
.:  
total 284  
-rw-r--r-- 1 root bin 285 Jun 1 14:54 access.conf  
-rw-r--r-- 1 root other 348 Jul 10 18:14 access.conf.default  
-rw-r--r-- 1 root other 31503 Jul 10 18:14 httpd.conf  
-rw-r--r-- 1 root bin 31946 Jan 5 2000 httpd.conf-example  
-rw-r--r-- 1 root other 31503 Jul 10 18:14 httpd.conf.default  
-rw-r--r-- 1 root bin 12441 Jun 1 14:54 magic  
-rw-r--r-- 1 root other 12441 Jul 10 18:14 magic.default  
-rw-r--r-- 1 root bin 7354 Jun 1 14:54 mime.types  
-rw-r--r-- 1 root other 9957 Jul 10 18:14 mime.types.default  
-rw-r--r-- 1 root bin 297 Jun 1 14:54 srm.conf  
-rw-r--r-- 1 root other 357 Jul 10 18:14 srm.conf.default  
#  
Directory '/var/apache':  
# cd /var/apache  
# ls -lR  
total 6  
drwxrwxr-x 2 root wheel 512 Oct 3 05:28 cache  
drwxr-xr-x 2 root wheel 512 Oct 3 06:29 log  
drwxr-xr-x 2 root wheel 512 Oct 3 06:29 run  
  
.cache:  
  
.log:  
  
.run:  
#  
Directory '/usr/apache':  
# cd /usr/apache  
# ls -lR
```

```

total 8
drwxr-xr-x  2 root  wheel   512 Oct  3 06:29 cgi-bin
drwxr-xr-x  3 root  wheel   512 Oct  3 06:29 htdocs
drwxr-xr-x  2 root  wheel  2048 Oct  3 06:29 icons

./cgi-bin:
total 4
-rw-r--r--  1 root  wheel  127 Oct  3 06:29 printenv
-rw-r--r--  1 root  wheel  757 Oct  3 06:29 test-cgi

./htdocs:
total 12
-rw-r--r--  1 tsingle  devel  2326 Jul  3 1996 apache_pb.gif
-rw-r--r--  1 tsingle  devel  1622 May 20 10:59 index.html
drwxr-xr-x  6 tsingle  devel  1024 Sep 21 15:21 manual

./htdocs/manual:
total 532
-rw-r--r--  1 tsingle  devel   2848 Mar 31 1998 LICENSE
-rw-r--r--  1 tsingle  devel   4815 Sep 21 15:20 bind.html
...
.

./icons:
total 188
-rw-r--r--  1 tsingle  devel   4816 Feb 22 1996 README
-rw-r--r--  1 tsingle  devel    246 Feb 22 1996 a.gif
...
#

```

The Configuration files

Before we can actually run apache, we have to edit the configuration file, ‘/etc/apache/httpd.conf’:

- Make sure httpd will run at port 80. ‘httpd.conf’ should contain the line ‘Port 80’; if it has some other port (i.e. 8080). change it to 80.
- Set the ServerAdmin address.
- Uncomment the ‘ExtendedStatus On’ line.
- If this machine is a gateway, uncomment the ‘ProxyRequests On’ line.
- The ‘order allow,deny’ and ‘allow from all’ lines in the ‘<Directory /usr/apache/htdocs>’ block make this server pretty wide-open. You might consider commenting these out and adding the lines ‘order deny,allow’ and ‘deny from all’ to the ‘<Directory />’ block. Now you can grant access by editing the ‘.htaccess’ files.
- Change the ‘Options’ line in the ‘<Directory /usr/apache/htdocs>’ block to ‘Options Includes FollowSymLinks’.
- Uncomment the ‘<Location /server-status>’ block.

- Add blocks for other directories at the bottom of this file. For example, we allow user tcw's pages to use CGI by and grant access from any .gsfc.nasa.gov by adding the section:

```
<Directory /home/tcw/public_html>
  Options Includes FollowSymLinks ExecCGI
  Allow from .gsfc.nasa.gov
</Directory>
```

- Change the DirectoryIndex line to

```
DirectoryIndex Welcome.cgi Welcome.shtml Welcome.html Welcome.htm \
              Top.html index.html index.htm dir.html dir.htm
```

- Uncomment the 'AddHandler cgi-script .cgi' line.
- Uncomment the 'AddType text/html .shtml' and 'AddHandler server-parsed .shtml' lines.

Starting the Server

Things are configured enough now to start testing the server. The command to start the server is '/usr/local/apache/sbin/apachectl start'; the command to stop the server is '/usr/local/apache/sbin/apachectl stop'.

Getting the server to automatically start when the machine reboots depends on the operating system:

On FreeBSD, create '/usr/local/etc/rc.d/apache':

```
#!/bin/sh
[ -x /usr/local/apache/sbin/apachectl ] \
  && /usr/local/apache/sbin/apachectl start \
  && echo -n " httpd"
```

On Solaris, create '/etc/init.d/apache' with hard links to '/etc/rc3.d/S95apache' and '/etc/rc3.d/K95apache'.

```
#!/bin/sh
[ -x /usr/local/apache/sbin/apachectl ] \
  && /usr/local/apache/sbin/apachectl $ \
  && echo "httpd"
```

The Document Root

When no other directory or page is specified, '/usr/apache/htdocs/index.html' gets displayed. We override this by creating '/usr/apache/htdocs/Welcome.shtml':

```
<HTML>
<HEAD><TITLE><!--#echo var="SERVER_NAME" --></TITLE></HEAD>
<BODY>
<H1><!--#echo var="SERVER_NAME" --></H1>

<!-- Begin local stuff -->
<I>Sorry, we're still under construction.</I>
```

```

<!-- End local stuff -->
<P>

<ADDRESS>
<B>Revision:</B> <!--#echo var="LAST_MODIFIED" -->
</ADDRESS>
<P>
<DIV ALIGN="CENTER">
  <A HREF="manual/index.html">
    <IMG SRC="apache_pb.gif" BORDER=0 ALT="powered by apache">
  </A>
</DIV>
</BODY>
</HTML>

```

We customize this template for each machine.

Managing Log Files

Apache writes log messages to '/var/apache/log/access_log' and '/var/apache/log/error_log'. Left unmanaged, these files will eventually grow huge. We configure cron to run a script that starts new files each week and keeps the old files around for three weeks. In other words, logs up to four weeks old (the current week plus the three previous weeks are kept) are kept and older logs are deleted. This is a compromise between the desire to keep log files, the need to respect visitors' privacy, and limited disk space.

Although apache comes with the *rotatelogs* utility that can rotate log files, we prefer to use our own script since *rotatelogs* won't delete files older than four weeks.

First create '/var/apache/log/newlogfiles' and make it executable by root:

```

#!/bin/sh
# This is /var/apache/log/newlogfiles, a script to be run from cron
# to manage apache's log files.

cd /var/apache/log

for LOG in access_log error_log; do
  test -f $LOG.2 && mv $LOG.2 $LOG.3
  test -f $LOG.1 && mv $LOG.1 $LOG.2
  test -f $LOG.0 && mv $LOG.0 $LOG.1
  mv $LOG $LOG.0
  touch $LOG
  chmod 644 $LOG
done

/usr/local/apache/sbin/apachectl graceful

```

The edit root's crontab to run this script weekly. As root, run 'crontab -e' and add a line like:

```
42 2 * * 0 /var/apache/log/newlogfiles
```